



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,676	09/23/2003	Roman C. Gutierrez	14250-016001	1414

20985 7590 05/21/2004

FISH & RICHARDSON, PC
12390 EL CAMINO REAL
SAN DIEGO, CA 92130-2081

EXAMINER

MARTINEZ, JOSEPH P

ART UNIT PAPER NUMBER

2873

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/669,676

Applicant(s)

GUTIERREZ ET AL.

Examiner

Joseph P. Martinez

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
- Paper No(s)/Mail Date 12-15-03
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date: ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the city and either state or foreign country of residence of each inventor. The residence information may be provided on either on an application data sheet or supplemental oath or declaration.

It is not clear as to whether the address given is Residence Address or Post Office Address for inventor Eduardo G.H. Schmidtlin on declaration.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-4 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (6625352) in view of Raguin et al. (20020131699).

Re claim 1, Chang teaches in figs. 4 and 7, an optical fiber (44; fig. 4) having an angled distal end (49; fig. 4, col. 3, ln. 64-65); a ferrule (46, fig. 4) having an angled end face (48, fig. 4), wherein an end portion of the optical fiber is inserted in the ferrule (col. 3, ln. 59); and a lens (72, fig. 7, col. 5, ln. 34) attached to the angled distal end of the ferrule (76, fig. 7), the

Art Unit: 2873

collimating lens collimating a beam of light from the optical fiber (col. 5, ln. 18-21), including using other collimating lenses (col. 5, ln. 19-21).

But, Chang et al. fails to explicitly teach a plano-convex collimating lens.

However, within the same field of endeavor, Raguin et al. teach in fig. 2, a collimating lens (13) is plano-convex (wherein the surface 10c is planar and surface 10 is convex).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Chang with the plano-convex lens of Raguin et al. in order to provide a suitable surface to adhere the fiber optic.

Re claim 2, Raguin et al. further teach for example, the optical fiber is glued to the ferrule (para. 0042, wherein the office interprets holding the fiber in the ferrule to include gluing the ferrule in the fiber as is well known in the art).

Re claim 3, Raguin et al. further teach in fig. 2, the plano-convex lens is attached to the ferrule by a low viscosity, ultraviolet-curing adhesive (14, para. 0043):

Re claim 4, Chang in view of Raguin et al. teach the collimator as disclosed above in claim 1, including the gap being 100 μm as taught by Raguin et al.

But, Chang in view of Raguin et al. fail to explicitly teach a gap between a planar side of the lens and a fiber end face is about 10 microns or less.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the gap between a planar side of the lens and a fiber end face be

Art Unit: 2873

about 10 microns or less, since it has been held where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

In re *Aller*, 105 USPQ 233.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Chang in view of Raguin et al. to make the gap be about 10 microns or less in order to prevent back-reflections.

Re claim 6, Raguin et al. further teach in fig. 2, an angle of the beam of light exiting the optical fiber is substantially equal to an angle of the beam of light exiting the plano-convex lens (19, wherein the optic axis stays constant).

Re claim 7, Chang further teach for example, an anti-reflection layer on the angled distal end of the fiber (col. 5, ln. 6-10).

2. Claims 8-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raguin et al. (20020131699).

Re claims 8 and 19, Raguin et al. teach in figs. 7 and 10, a method of collimating an optical beam comprising: providing a planar, angled fiber termination or an array of angle polished fiber terminations (12, fig. 7); placing a plano-convex lens (10, fig. 7) over the planar, angled fiber termination such that there is a gap (para. 0043) between a planar side of the lens (10c, fig. 7) and a fiber end face; adjusting a lateral position of the lens parallel to a plane of a

Art Unit: 2873

lens-fiber surface to achieve a desired pointing angle for a collimated light beam exiting the lens (para. 0053); and fixing the lateral position of the lens with respect to the planar, angled fiber termination (para. 0053).

But, Raguin et al. fails to explicitly teach the gap is about 10 microns or less.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the gap between a planar side of the lens and a fiber end face be about 10 microns or less, since it has been held where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re *Aller*, 105 USPQ 233.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Raguin et al. to make the gap be about 10 microns or less in order to prevent back-reflections.

Re claim 20, Raguin et al. teach in figs. 7 and 14, a method of collimating an optical beam comprising: providing an array of plano-convex lenses (10, fig. 14); placing an angle polished fiber termination (1219, fig. 14) under one of the plano-convex lenses such that there is a gap (para. 0043) between a planar side of the lens (10c, fig. 7) and a fiber end face; adjusting a lateral position of the fiber termination parallel to a plane of the lens-fiber surface to achieve a desired pointing angle for a light beam exiting the lens (0053); and fixing a position of the fiber termination (0053).

But, Raguin et al. fails to explicitly teach the gap is about 10 microns or less.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the gap between a planar side of the lens and a fiber end face be about 10 microns or less, since it has been held where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re *Aller*, 105 USPQ 233.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Raguin et al. to make the gap be about 10 microns or less in order to prevent back-reflections.

Re claims 9-11, 15 and 18, Raguin et al. further teach in fig. 10, laterally aligning the plano-convex lens transverse to a fiber axis and with respect to the fiber end face to reduce optical aberrations in the collimated beam exiting the lens (para. 0053), further comprising minimizing either spherical or comatic aberrations (para. 0065, wherein the office interprets aberrations as taught by Raguin et al. to include all types of optical aberrations).

Re claim 12, Raguin et al. further teach, coating an anti-reflection layer on the planar side of the lens (para. 0060).

Re claim 13, Raguin et al. further teach in fig. 2, filling entirely the gap between the fiber termination and the planar side of the lens with a transparent material (14).

Re claim 14, Raguin et al. further teach in fig. 14, moving a lens with at least one actuator with respect to the fiber termination (via computer controlled 1225).

Re claim 16, Raguin et al. further teach for example, adjusting the gap between the fiber termination and the lens to modify a wavelength dependence of transmission and reflection (para. 0076, wherein the office interprets aligning with the same or similar light to be used to teach the claimed limitations).

Re claim 17, Raguin et al. further teach for example in fig. 10, adjusting the lateral position of the lens with respect to the fiber termination to change a pointing angle of the collimated beam (para. 0053).

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (6625352) in view of Raguin et al. (20020131699) as applied to claim 1 and further in view of Kanazawa (6179483).

Re claim 5, Chang in view of Raguin et al. teach the collimator as disclosed above.

But, Chang in view of Raguin et al. fail to explicitly teach comprising a substrate with an angled hole shaped to fit the ferrule, the ferrule being inserted in the hole.

However, within the same field of endeavor, Kanazawa teaches in fig. 1, a substrate with an angled hole (18) shaped to fit the ferrule, the ferrule (19) being inserted in the hole.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Chang in view of Raguin et al. with the substrate with an angled hole of Kanazawa in order to support the ferrule as taught by Kanazawa.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph P. Martinez whose telephone number is 571-272-2335.

The examiner can normally be reached on M-F 7:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM
5-13-04


Georgia Epps
Supervisory Patent Examiner
Technology Center 2800